

## OBSERVATIONS OF PERRINE'S COMET, 1902 b.

THIS comet was discovered by Perrine, using the 12-inch refractor of the Lick Observatory, on the morning of September 1, and the discovery was published by the following telegram, of that date, from Prof. Pickering to the Kiel Centralstelle:—"A comet was discovered by Perrine August 31, 16h. 8m. 16s. Lick,  $\alpha$  app. 3h. 17m. 49s.  $\delta$  app.  $+34^{\circ}38'47''$ , slightly elongated, mean diameter  $4'$ , magnitude 9, tolerably well-defined nucleus, tail." This object was also discovered, independently of Perrine, by M. Borelly, of the Marseilles Observatory, on September 2, 9h. 50m.  $\delta$ , and the observation was forwarded to Kiel in a telegram from M. Lœwy, which stated that the comet's position, at the time of its discovery, was  $\alpha = 49^{\circ}9'$ , N.P.D. =  $54^{\circ}48'$ , its daily movement  $-15'$  and  $-26'$  respectively, and that it possessed a nucleus and a tail.

Further observations were made by Perrine, and the following parabolic elements, ephemeris and details have been obtained therefrom:—

## Elements of Comet 1902 b.

T = 1902 November 23<sup>h</sup> 47<sup>m</sup> 2 G.M.T.

$$\begin{aligned}\omega &= 153 \ 25 \ 46 \\ \Omega &= 49 \ 56 \ 10 \\ i &= 156 \ 54 \ 22 \\ \log q &= 9.60424.\end{aligned}$$

## Ephemeris for 12h. G.M.T. (Perrine).

1902.	True $\alpha$ .	True $\delta$ .	log. $\Delta$ .	Bright- ness.
	h. m. s.			
Oct. 5 <sup>h</sup> 5	20 55 49	$+50^{\circ} 28'$	9.566	27.1
22 <sup>h</sup> 5	17 43 15	$+3^{\circ} 53'$	9.812	16.1
Nov. 8 <sup>h</sup> 5	16 57 23	$-11^{\circ} 0'$	0.040	13.9
23 <sup>h</sup> 5	16 13 8	$-18^{\circ} 13'$	0.139	17.2

The brightness given for each day is the value obtained on comparison with the brightness at the time of discovery, calling the latter unity. Perrine adds that, when discovered, the comet had a magnitude of 9, with a well-defined, but not stellar, nucleus of magnitude  $10.5$  or  $11.0$ ; the diameter of the coma was  $4'$  to  $5'$ , whilst the short, brushy tail could be traced to the south-west for a distance of  $8'$  to  $10'$ . As a correction to the telegram dispatched to the various observatories on September 2, he mentions that the calculated time of perihelion passage is November 23<sup>h</sup> 47, and not November 24<sup>h</sup> 47 as was stated in that telegram.

The above elements and ephemeris agree fairly closely with those calculated by Herr Elis Strömgen, of Kiel, from observations made at Lick (September 1<sup>st</sup> 05), Urania (September 2<sup>nd</sup> 58) and Copenhagen (September 4<sup>th</sup> 61), and he has calculated an ephemeris for every day from September 6 to October 16. Part of this ephemeris is given below, and from it has been prepared the accompanying chart, which shows the comet's approximate daily positions with regard to the neighbouring stars.

## Ephemeris for 12h. M.T. (Berlin). (Strömgen.)

1902.	$\alpha$ app.	$\delta$ app	Brightness. <sup>1</sup>
	h. m. s.		
Oct. 2	22 28 46	$+56^{\circ} 15.9'$	
3	21 55 30	$54^{\circ} 56.5'$	
4	21 23 23	$52^{\circ} 58.3'$	26.0
5	20 53 36	$50^{\circ} 25.1'$	
6	20 26 46	$47^{\circ} 22.8'$	
7	20 3 5	$43^{\circ} 59.4'$	
8	19 42 28	$40^{\circ} 23.5'$	29.4
9	19 24 41	$36^{\circ} 42.9'$	
10	19 9 20	$33^{\circ} 4.5'$	
11	18 56 4	$29^{\circ} 32.9'$	
12	18 44 33	$26^{\circ} 11.5'$	26.6
13	18 34 31	$23^{\circ} 2.3'$	
14	18 25 42	$20^{\circ} 6.2'$	
15	18 17 54	$17^{\circ} 23.3'$	
16	18 10 58	$14^{\circ} 53.3'$	21.8

<sup>1</sup> Brightness at time of discovery = 1.

MM. Borelly and Fabry, of the Marseilles Observatory, have observed the comet on several occasions since its discovery by the former, and they report that it is fairly brilliant, has an elongated nucleus and a tail  $10'$  to  $12'$  long. On September 2, at 14h. (Marseilles M.T.), the nucleus appeared to become double and thus form two small, globular nuclei; on September 3 it had much the same aspect, but on September 5 the nucleus was more diffuse and the light of the comet appeared to sensibly diminish.

It may be seen from the above ephemerides that the comet will attain its maximum brightness about October 8 and that it

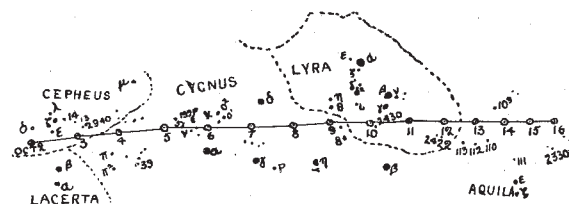


FIG. 1.

passed its maximum declination on September 30, so that by November 30 it will be comparatively faint, and so far south that it will be a difficult object for observers in the northern hemisphere, except on very fine nights and in clear atmospheres; at present (September 27) it is an easy object to find with an ordinary opera-glass, and, given good meteorological conditions, it should soon become obviously visible to the naked eye.

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## THE BRITISH ASSOCIATION AT BELFAST.

### SECTION H.

#### ANTHROPOLOGY.

OPENING ADDRESS BY A. C. HADDON, M.A., Sc.D., F.R.S., M.R.I.A., PRESIDENT OF THE SECTION.

So much has been written of late on totemism that I feel some diffidence in burdening still further the literature of the subject. But I may plead a slight claim on your attention, as I happen to be an unworthy member of the Crocodile kin of the Western tribe of Torres Straits, and I have been recognised as such in another island than the one where I changed names with Maino, the chief of Tutu, and thereby became a member of his kin.

I do not intend to discuss the many theories about totemism, as this would occupy too much time; nor can I profess to be able to throw much light upon the problems connected with it; but I chiefly desire to place before you the main issues in as clear a manner as may be, and I venture to offer for your consideration one way in and some ways out of totemism.

A few years ago M. Marillier wrote ("Rev. de l'Hist. des Religions," xxxvi. 1897, pp. 368, 369), that "totemism is one of the rare forms of culture: it is incapable of evolution and transformation, and is intelligible only in its relations with certain types of social organisation. When these disappear it also disappears. Totemism in its complete development is antagonistic alike to transformation or progress." In due course I shall describe how one people at least is emerging from totemism. At the outset I wish it to be distinctly understood that I do not regard this as the only way out; doubtless there have been several transformations, but a record of what appears to be taking place appeals more to most students than a guess as to what may have happened.

What is most needed at the present time is fresh investigation in the field. Those who are familiar with the literature of the subject are only too well aware of the imperfection of the available records. There are several reasons which account for this. Some of the customs and beliefs associated with totemism have a sacred significance, and the average savage is too reverent to speak lightly of what touches him so deeply. Natives cannot explain their mysteries any more than the adherents of more civilised religions can fully explain theirs. Further, they particularly dislike the unsympathetic attitude of most inquirers, and nothing shuts up a native more effectually than the fear of ridicule.

Language is another difficulty. Even supposing the white man has acquired the language, the vocabulary of the native is not sufficiently full or precise to explain those distinctions which appeal to us, but which are immaterial to him.

Granting the willingness of the native to communicate his ideas, and that the hindrance of language has been overcome, there remains the difficulty of the native understanding what it is the white man wishes to learn. If there is a practically insuperable difficulty in the investigator putting himself into the mental attitude of the savage, there is also the reciprocal source of error.

"Oh, East is East, and West is West,  
And never the twain shall meet."

If Kipling is right for the civilised Oriental, how about those of lower stages of culture and more primitive modes of thought?

We must not overlook the fact that the majority of white men who mix with primitive folk are either untrained observers or their training is such that it renders them yet more unsympathetic—one might say antagonistic—to the native point of view. The

ignorance and prejudice of the white man are great hindrances to the understanding of native thought.

When students at home sift, tabulate and compare the available records they get a wider view of the problems concerned than the investigator in the field is apt to attain. Generalisations and suggestions crystallise out which may or may not be true, but which require further evidence to test them. So the student asks for fresh observations and sends the investigator back to his field.

The term "totemic" has been used to cover so many customs and beliefs that it is necessary to define the connotation which is here employed.

It appears from Major J. W. Powell's recent account of totemism (*Man*, 1902, No. 75) that the Algonkin use of the term "totem" is so wide as to include the representation of the animal that is honoured (but he does not state that the animal itself is called a totem), the clay with which the person was painted, the name of the clan,<sup>1</sup> and that of the gens,<sup>2</sup> the tribal name, the names of shamanistic societies, the new name assumed at puberty, as well as the name of the object from which the individual named. He distinctly states, "We use the term 'totemism' to signify the system and doctrine of naming." I must confess to feeling a little bewildered by this terminology, and I venture to think it will not prove of much service in advancing our knowledge. It looks as if there had been some misunderstanding, or that the Algonkins employed the word "totem" to cover several different ideas because they had not definite terms with which to express them. Major Powell's definitions practically exclude those cults which are practised in various parts of the world, and which by the common consent of other writers are described as totemic.

Prof. E. B. Tylor has given (*Man*, 1902, No. 1; cf. *Journ. Anthropol. Inst.*, xxviii. 1898, p. 138) the following clear exposition of his interpretation of the American evidence: "It is a pity that the word 'totem' came over to Europe from the Ojibwas through an English interpreter who was so ignorant as to confuse it with the Indian hunter's patron genius, his *manitu*, or 'medicine.' The one is no more like the other than a coat of arms is like a saint's picture. Those who knew the Algonkin tribes better made it clear that totems were the animal signs, or, as it were, crests, distinguishing exogamous clans; that is, clans bound to marry out of, not into, their own clan. But the original sin of the mistake of Long the interpreter has held on ever since, bringing the intelligible institution of the totem clan into such confusion that it has become possible to write about 'sex totems' and 'individual totems,' each of which terms is a self-contradiction. . . . Totems are the signs of intermarrying clans."

A reviewer in "L'Année Sociologique," ii. 1899, says (p. 202): "One must avoid giving to a genus the name of a species. It will be said these are merely verbal quibbles; but does not the progress of a science consist in the improvement of its nomenclature and in the classification of its concepts?"

Totemism, as Dr. Frazer and as I understand it, in its fully developed condition implies the division of a people into several totem kins (or, as they are usually termed, totem clans), each of which has one, or sometimes more than one, totem. The totem is usually a species of animal, sometimes a species of plant occasionally a natural object or phenomenon, very rarely a manufactured object. Totemism also involves the rule of exogamy, forbidding marriage within the kin, and necessitating intermarriage between the kins. It is essentially connected with the matriarchal stage of culture (mother-right), though it passes over into the patriarchal stage (father-right). The totems are regarded as kinsfolk and protectors or benefactors of the kinsmen, who respect them and abstain from killing and eating them. There is thus a recognition of mutual rights and obligations between the members of the kin and their totem. The totem is the crest, or symbol of the kin.

Sometimes all the kins are classified into two or more groups; for example, in Mabuag, in Torres Straits, there is a dual grouping of the kins, the totems of which are respectively land and water animals; and in speaking of the latter group my informant volunteered the remark, "They all belong to the water; they are all friends." On the mainland of New Guinea also I found that one group of the totems "stop ashore," while the other "stop in water." When no member of a group of kins in a community can marry another member of that same

<sup>1</sup> A group that reckons descent only through the mother.

<sup>2</sup> A group that reckons descent only through the father.